**Math099 Course Outcomes (Knowledge, Skills, Abilities)**

*Upon successful completion of the course, the successful student will be able to:*

* Solve systems of equations in two variables using graphing, substitution, and elimination methods.
* Solve a system of equations in three variables.
* Solve a system of linear inequalities.
* Solve a compound inequality.
* Use a system of equations to solve application problems.
* Perform operations (+, -, ×, ÷) on rational expressions.
* Solve rational equations.
* Solve application problems resulting in rational equations.
* Solve direct and inverse variation problems.
* Simplify radical expressions containing variables.
* Perform operations (+, -, ×, ÷) on radical expressions.
* Perform operations (+, -, ×, ÷) on complex numbers.
* Solve radical equations.
* Solve application problems resulting in radical equations.
* Solve quadratic equations using the square root property, completing the square, and the quadratic formula.
* Solve application problems resulting in quadratic equations.
* Solve equations in quadratic form.
* Graph quadratic equations.
* Find the composite of two functions.
* Find the inverse of a function.
* Evaluate exponential and logarithmic expressions.
* Solve basic exponential and logarithmic equations.
* Solve application problems resulting in exponential and logarithmic equations.

TEXTBOOK THREE (MATH 099 – Pre-College Math III)

**Module 11: Systems of Equations**

Introductory and Intermediate Algebra (combined text)

Chapter 8 Systems of Equations

8.1 Systems of Equations in Two Variables

8.2 Solving by Substitution

8.3 Solving by Elimination

8.4 Solving Applied Problems: Two Equations

8.5 Systems of Equations in Three Variables

8.6 Solving Applied Problems: Three Equations

Chapter 9 More on Inequalities

9.1 Sets, Inequalities, and interval notation

9.2 Intersections, Unions, and Compound Inequalities

9.3 Absolute-Value Equations and Inequalities

9.4 Systems of Inequalities in two variables

**Module 12: Rational Expressions**

Introductory and Intermediate Algebra (combined text)

Appendix D Review of Factoring Polynomials

Chapter 6 Rational Expressions and Equations

6.1 Multiplying and Simplifying Rational Expressions

6.2 Division and Reciprocals

6.3 Least Common Multiples and Denominators

6.4 Adding Rational Expressions

6.5 Subtracting Rational Expressions

6.6 Complex Rational Expressions

6.7 Solving Rational Equations

6.8 Applications Using Rational Equations and Proportions

6.9 Variation and Applications

**Module 13: Radical Expressions**

Introductory and Intermediate Algebra (combined text)

Chapter 10 Radical Expressions, Equations, and Functions

10.1 Radical Expressions and Functions

10.2 Rational Numbers as Exponents

10.3 Simplifying Radical Expressions

10.4 Addition, Subtraction, and More Multiplication

10.5 More on Division of Radical Expressions

10.6 Solving Radical Equations

10.7 Applications Involving Powers and Roots

10.8 The Complex Numbers

**Module 14: Quadratic Equations**

Introductory and Intermediate Algebra (combined text)

Chapter 11 Quadratic Equations and Functions

11.1 The Basics of Solving Quadratic Equations

11.2 The Quadratic Formula

11.3 Applications Involving Quadratic Equations

11.4 More on Quadratic Equations

11.5 Graphing y = a(x – h)2 + k

11.6 Graphing y = ax2 + bx + c

**Module 15: Exponentials and Logarithms**

Introductory and Intermediate Algebra (combined text)

Chapter 7 Graphs, Functions, and Applications

7.1 Functions and Graphs

7.2 Finding Domain and Range

Chapter 12 Exponential and Logarithmic Functions

12.1 Exponential Functions

12.2 Inverse and Composite Functions

12.3 Logarithmic Functions

12.4 Properties of Logarithmic Functions

12.5 Natural Logarithmic Functions

12.6 Solving Exponential and Logarithmic Equations

12.7 Mathematical Modeling with Exponential and Logarithmic Functions